

## CLAIMS

### What is claimed is:

1. A sandwich panel comprising:
  - a core comprising a permeable body having a first panel surface with a first perimeter, a second panel surface with a second perimeter and an edge extending between the first and second perimeters of said first and second panel surfaces;
  - a first skin attached to said first panel surface, said first skin substantially covering said first panel surface;
  - a second skin attached to said second panel surface, said second skin substantially covering said second panel surface; and
  - a barrier located between said first skin and said first panel surface and between said second skin and said second panel surface, said barrier being made from an impermeable material and extending around said core to provide an impermeable chamber in which said core is located.
2. A sandwich panel according to claim 1 wherein said core is honeycomb.
3. A sandwich panel according to claim 2 wherein said honeycomb comprises impermeable walls that have been perforated to provide said permeable body.
4. A sandwich panel according to claim 1 wherein said barrier comprises a thermoplastic material.
5. A sandwich panel according to claim 1 wherein said barrier is bonded to the first and second panel surfaces of said vapor permeable body with an adhesive.
6. A sandwich panel according to claim 1 wherein said barrier is bonded to said first and/or second skin with an adhesive.
7. A sandwich panel according to claim 5 wherein said barrier is bonded to said first and/or second skin with an adhesive.

8. A sandwich panel according to claim 1 wherein said first and second skins extend out past the edge of said impermeable body.

9. A method for making a sandwich panel comprising the steps of:  
providing a core comprising a permeable body having a first panel surface with a first perimeter, a second panel surface with a second perimeter and an edge extending between the first and second perimeters of said first and second panel surfaces;  
surrounding said core with an impermeable material to form an impermeable chamber having an interior in which said core is located;  
placing at least one skin next to said first or second panel surface so that said impermeable material is sandwiched between said skin and said panel surface, said skin having an interior surface adjacent to said impermeable material and an exterior surface;  
bonding said skin to said core by applying a given amount of molding pressure and heat to the exterior surface of said skin; and  
applying pressure to the interior of said impermeable chamber during said bonding step to form a counter pressurized chamber that applies counter pressure against the interior surface of said skin.

10. A method for making a sandwich panel according to claim 9 which comprises the steps of placing a first skin next to said first panel surface and placing a second panel skin next to said second panel surface wherein said first and second skins sandwich said impermeable material between said first and second panel surfaces.

11. A method for making a sandwich panel according to claim 9 wherein an adhesive is placed between said impermeable material and said permeable body to provide bonding of said impermeable material to said permeable body.

12. A method for making a sandwich panel according to claim 9 wherein an adhesive is placed between said skin and said impermeable material to provide bonding of said impermeable material to said skin.

13. A method for making a sandwich panel according to claim 11 wherein an adhesive is placed between said skin and said impermeable material to provide bonding of said impermeable material to said skin.

14. A method for making a sandwich panel according to claim 9 wherein said core is honeycomb.

15. A method for making a sandwich panel according to claim 14 wherein said honeycomb comprises impermeable walls that have been perforated to provide said permeable body.

16. A method for making a sandwich panel according to claim 9 wherein said barrier comprises a thermoplastic material.

17. A method for making a sandwich panel according to claim 9 wherein said molding pressure is applied to said skin by a mold.

18. A method for making a sandwich panel according to claim 9 wherein said skin extends out past the edge of said permeable body and wherein said molding pressure and counter pressure are applied to the portion of said skin that extends out past the edge of said permeable body.

19. In a method for making a sandwich panel wherein a core is sandwiched between two skins by applying a molding pressure to the exterior surface of the skins, the improvement comprising making said core permeable, if it is not already permeable, and surrounding said core with an impermeable material to form an impermeable chamber in which said core is located and pressurizing said chamber during application of said molding pressure to provide a counter pressure against the interior surface of the skins.

20. An improved method for making a sandwich panel according to claim 19 wherein an adhesive is placed between said impermeable material and said core to provide bonding of said impermeable material to said core.

21. An improved method for making a sandwich panel according to claim 19 wherein and adhesive is placed between said skins and said impermeable material to provide bonding of said impermeable material to said skins.

22. An improved method for making a sandwich panel according to claim 20 wherein and adhesive is placed between said skins and said impermeable material to provide bonding of said impermeable material to said skins.

23. An improved method for making a sandwich panel according to claim 19 wherein said core is honeycomb.

24. An improved method for making a sandwich panel according to claim 23 wherein said honeycomb comprises impermeable walls that have been perforated to provide a permeable core.

25. An improved method for making a sandwich panel according to claim 19 wherein said impermeable material is thermoplastic.

26. An improved method for making a sandwich panel according to claim 19 wherein said molding pressure is applied to said skins by a press.

27. An improved method for making a sandwich panel according to claim 19 wherein said skins extend out past the edge of said permeable body and wherein said molding pressure and counter pressure are applied to the portion of said skins that extend out past the edge of said permeable body.